

## **REMARKS**

### **Response to the Objection to Claim 1**

Applicants have hereby amended claim 1 to correct the informalities pointed out by the Examiner in the August 10, 2005 Office Action.

### **Response to the §103 Rejection of Claims 1-6, 8, 11, 12, 21, and 22**

In the August 10, 2005 Office Action, the Examiner rejected Claims 1-6, 8, 11, 12, 21 and 22 under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 6,451,681 to Greer (hereinafter "Greer") in view of U.S. Patent No. 6,180,505 to Uzoh (hereinafter "Uzoh").

In response, Applicants have hereby amended claim 1, from which claims 2-6, 8, 11, 12, and 21 depend, to positively recite a Ni/Au metallization that comprises "a Ni layer overlaid by an Au layer." Further, Applicants have amended claim 22 to correspondingly recite a Ni/Au metallization that comprises "a Ni layer overlaid by an Au layer." Support for such claim amendments can be found in the instant specification at paragraphs [0059]-[0061] and Figure 1H, which describes a Ni/Au metallization 44 that comprises a Ni layer 46 with an overlaying Au layer 48.

Applicants hereby traverse the Examiner's rejections of claims 1-6, 8, 11, 12, 21, and 22, as amended herein, for the following reasons:

The Greer reference fails to teach or suggest in any manner a Ni/Au metallization that comprises a Ni layer overlaid by an Au layer. Greer only discloses a pad limiting metal layer 314 (or 608) that may comprises a Cr layer 304 (or 600), a Cu layer 306 (or 602), and an Au layer 308 (or 604) or other combinations of films, such as a composite of Ti, Cu, and Au, or a composite of Ti, Ni, Cu and Au (see Greer, Figures 3 and 6; column 4, lines 37-58; column 6, lines 5-13). However, nothing in Greer teaches or suggests, either expressly or implicitly, the

specific combination of Ni and Au, much less the combination of a Ni layer with an overlaying Au layer.

The Uzoh reference, on the other hand, discloses a layered structure that comprises a metal transition film 25 containing NiP, NiB, or CoWP overlaid by a gold film 26 (see Uzoh, Figure 6, and column 6, lines 20-42). Nothing in Uzoh teaches or suggests that the metal transition film 25 can be a Ni film. Therefore, Uzoh only discloses a combination of NiP, NiB, or CoWP with Au, but not a Ni and Au combination, much less the combination of a Ni layer with an overlaying Au layer.

It is thus clear that Greer and Uzoh, either taken singularly or in combination, fail to teach or suggest a Ni/Au metallization that comprises a Ni layer overlaid by an Au layer, as positively recited by claims 1-6, 8, 11, 12, 21, and 22 of the present application.

Further, Applicants have hereby amended claim 1, from which claims 2-6, 8, 11, 12, and 21 depend, to positively recite that the Au layer of the Ni/Au metallization is "formed by immersion deposition of Au followed by electroless deposition of Au." Support for such claim amendments can be found in the instant specification at paragraphs [0059]-[0061], which describes formation of the Au layer 48 by an immersion deposition process followed by an electroless deposition process. More specifically, the instant specification states that the immersion gold deposition step, which is carried out after the Ni deposition but before the electroless gold deposition, functions to "minimize nickel ion contamination in the electroless gold bath, thereby increasing the longevity of the electroless gold bath" (see instant specification, paragraph [0061], lines 2-4).

The Examiner expressly conceded that the Greer reference fails to disclose immersion and electroless deposition of Au (see Office Action, page 3, lines 16-17), but still attempted to remedy the deficiency of Greer by citing Uzoh.

The Uzoh reference only discloses in general a gold film 27 that can be formed by either immersion gold deposition, or electroless gold deposition, or a combination of both immersion and electroless gold deposition steps, but it does not teaches or suggest any specific order for carrying out the immersion gold deposition and electroless gold deposition steps. In fact, Uzoh fails to appreciate in any manner the benefit of carrying out the immersion gold deposition step before the electroless gold deposition step.

Therefore, claims 1-6, 8, 11, 12, and 21 of the present application further distinguish over the combination of Greer and Uzoh, by positively reciting immersion deposition of Au followed by electroless deposition of Au.

#### **Response to the §103 Rejection of Claim 9**

In the August 10, 2005 Office Action, the Examiner rejected claim 9 under 35 U.S.C. § 103(a) as allegedly obvious over Greer in view of Uzoh, and further in view of U.S. Patent No. 4,696,098 to Yen (hereinafter "Yen").

Claim 9 depends from claims 1 and 8, and it therefore patentably distinguishes over the combination of Greer and Uzoh for the same reasons stated hereinabove for claims 1 and 8.

Yen cannot remedy the above-described deficiencies of Greer and Uzoh, and claim 9 thus patentably distinguishes over the combination of Greer, Uzoh, and Yen.

#### **Response to the §103 Rejection of Claim 10**

In the August 10, 2005 Office Action, the Examiner rejected claim 10 under 35 U.S.C. § 103(a) as allegedly obvious over Greer in view of Uzoh, and further in view of U.S. Patent No. 6,174,823 to Dobson, et al. (hereinafter "Dobson").

Claim 10 depends from claims 1 and 8, and it therefore patentably distinguishes over the combination of Greer and Uzoh for the same reasons stated hereinabove for claims 1 and 8.

Dobson cannot remedy the above-described deficiencies of Greer and Uzoh, and claim 10 thus patentably distinguishes over the combination of Greer, Uzoh, and Dobson.

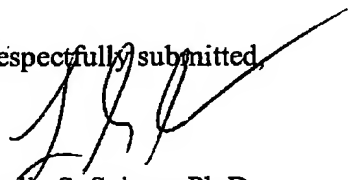
In summary, pending claims 1-6, 8-12, 21, and 22 of the present application patentably distinguish over the cited references Greer, Uzoh, Yen and Dobson, and Applicants respectfully request the Examiner to reconsider, and upon reconsideration to withdraw, the rejections of these claims.

**CONCLUSION**

Based on the foregoing, claims 1-6, 8-12, 21, and 22, as amended herein, are in condition for allowance. Issue of a Notice of Allowance for the application is therefore requested.

If any issues remain outstanding, incident to the formal allowance of the application, the Examiner is requested to contact the undersigned attorney at (516) 742-4343 to discuss same, in order that this application may be allowed and passed to issue at an early date.

Respectfully submitted,

  
Leslie S. Szivos, Ph.D.  
Registration No. 39,394

SCULLY, SCOTT, MURPHY & PRESSER  
400 Garden City Plaza Suite 300  
Garden City, New York 11530  
(516) 742-4343  
Customer No. 23389  
LSS/MY